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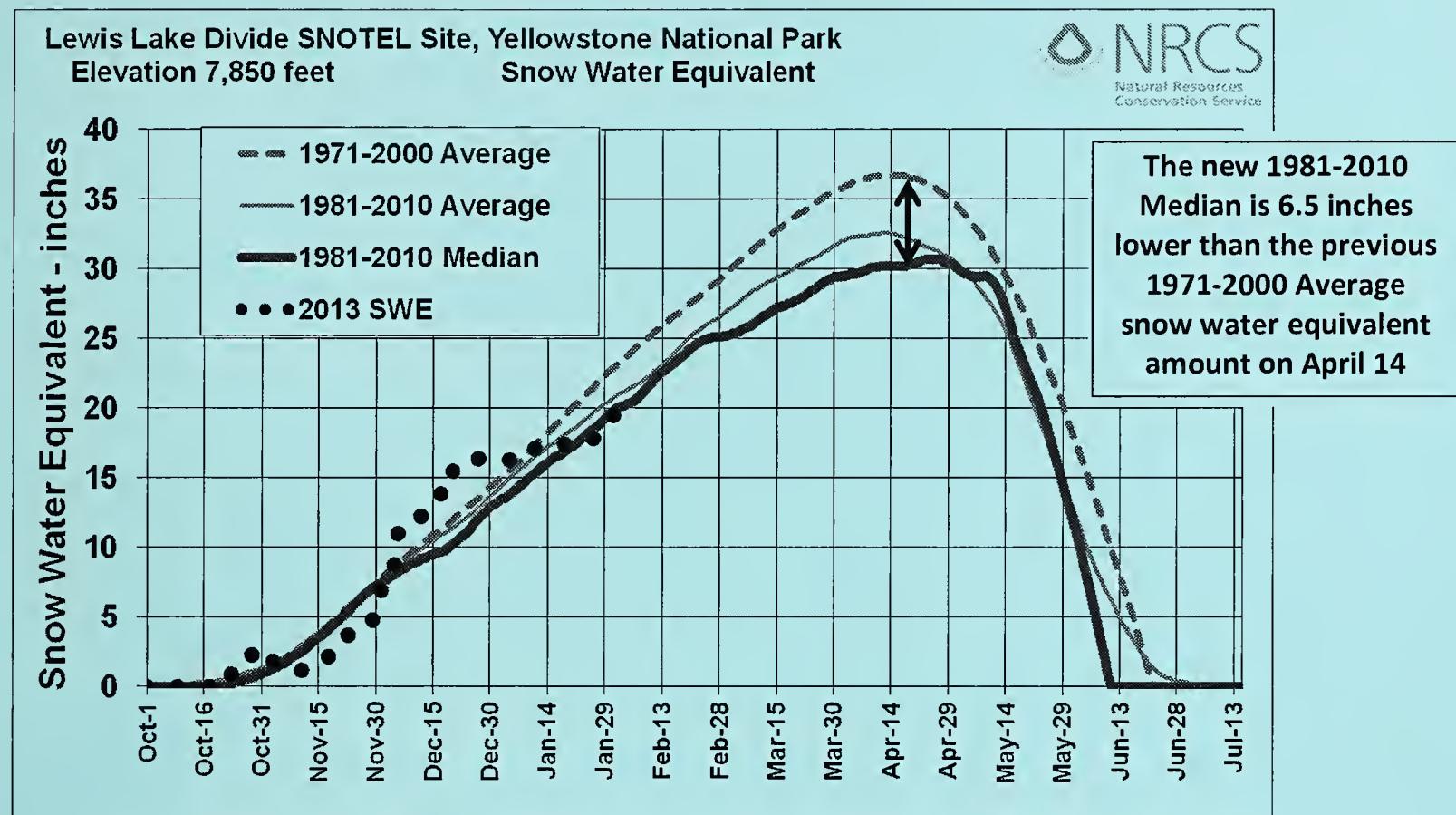




United States Department of Agriculture  
Natural Resources Conservation Service

# Idaho Water Supply Outlook Report

## February 1, 2013



### Use of Median vs. Average to Compare Snow Water Content

Although *average* is a commonly-used and well understood statistic, *median* is also a common descriptor used to express a "middle" value in a set of data. This "middle" value is also known as the *central tendency*. Median is determined by ranking the data from largest to smallest, and then identifying the middle so that there are an equal number of data values larger and smaller than it is. While the average and median can be the same or nearly the same, they are different if more of the data values are clustered toward one end of their range and/or if there are a few extreme values. In statistical terminology, this is called *skewness*. In this case, the average can be significantly influenced by the few values, making it not very representative of the majority of the values in the data set. Under these circumstances, median gives a better representation of central tendency than average.

In general, snow water equivalent for a given day over a historical period shows skewness. This is particularly evident at the onset of snow accumulation and near the time of melt out, when many years have very small or zero values and only a few have significant nonzero values. Skewness may also be noticeable throughout the year due to the presence of a few large snow years. In these cases, the median is typically different (usually smaller) than the average but better represents the central tendency of SWE than does the average. Also, note the daily median line is not a smooth line since it is based on the 30 years of daily SWE data. Since the median is typically lower than the average SWE, it acts to further inflate snow percentages as was highlighted on last month's cover.

# **Basin Outlook Reports**

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### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when the snow melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to produce runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertainty is in the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# **IDAHO WATER SUPPLY OUTLOOK REPORT**

**FEBRUARY 1, 2013**

## **SUMMARY**

In an effort to conserve resources, reduce costs, and meet government policy, we are reducing the number of printed and mailed copies of the Idaho Water Supply Outlook Report. Starting with the February 2013 issue, all Idaho NRCS Field Offices will no longer receive a hardcopy of the report in the mail. You can access these reports online at <http://www.id.nrcs.usda.gov/snow/watersupply/> to print for your customers. If you are interested in helping us keep these costs down, please let us know by email at <mailto:IDBOISE-NRCS-SNOW@one.usda.gov> so we can remove your name from the mailing database and add you to our electronic email notification list when new reports are available. If you do not have access to the internet to view the reports online, please let us know so we can accommodate your needs. Thank you for helping us serve you more efficiently and manage our budget more effectively.

With one dry month behind us, concerns are increasing about adequate water supplies for this summer. Luckily, most of Idaho got off to a great start with good precipitation falling in November and December. We've learned in the past, that one dry month does not usually impact our water supply too much. It is when one dry month leads to two, or three, dry months in a row, that impacts will be felt. The key this year will be February and whether or not the dry trend continues. If February is dry, we'll see the snowpack and streamflow percentages decrease like they did in January and users may have to re-examine their decisions. Normal precipitation would help stabilize percentages during February.

As mentioned in last month's water supply report, all values are now compared to the 1981-2010 normal period. Snow water equivalent values are calculated as medians while precipitation, streamflow and reservoir storage levels are calculated as averages. Percentages may seem higher than last year because the new normals for the 1981-2010 period are lower than the 1971-2000 period across the state. Users should compare the actual water content for a true measure of this year to last year. An updated comparison of February 1 snow percentages with 1971-2000 averages side by side with the 1981-2010 medians is available at:

<ftp://ftp-fc.sc.egov.usda.gov/ID/snow/data/averages/Feb1-71vs81.pdf>

## **SNOWPACK**

Currently, snowpack percentages range from a low of 77% of normal in the Coeur d'Alene basin, 60% of its seasonal peak, to 131% in the Big Lost basin, 80% of its seasonal peak. While the dry month of January saw snowpack percentages decrease by up to 30 percentage points from a month ago, Salmon Falls and Oakley basins increased by 12 percentage points to about 95% of normal thanks to an isolated pocket of normal precipitation. Also interesting is that Idaho's snowpacks are currently the same or less than last year at this time except in the headwater streams in Idaho's central mountains and in the Owyhee, Bruneau and Salmon Falls basins. Elevation trends in the snowpack that are still present, especially in the southern two-thirds of the state where low elevation snowpacks remain below normal, while higher elevation snow is in better shape.

## PRECIPITATION

For most of the state, January precipitation was below normal. The lowest amounts were half of average in the central mountains stretching from the Boise basin to the Big Lost basin. The highest January amounts were near average or better in a few lucky southern Idaho basins that included the Bruneau, Salmon Falls and Oakley drainages. Elsewhere, January precipitation in the Bear River and Upper Snake basins was 65% of average, Salmon basin was 73%, Clearwater was 85%, and northern Idaho was 60-70%. Water year to date precipitation is still encouraging with most basins above average and only a handful of basins are below normal in the 90-100% of normal range. Below normal basins include the Bear, Boise and Upper Snake basins. The highest water year to date precipitation amounts are 120% of average in the Northern Panhandle, Weiser, Little Wood and Big Lost basins. Lessons learned in the past show that we can usually get by with one month of below normal precipitation, especially after a good start like this year. All eyes will be focused on February and to see if more storms enter the state, or if February precipitation is a bust. When there are two dry months in a row, negative impacts on the water supply start to occur. Water users should watch the weather closely and reexamine their water supply decisions as needed. Often, once the weather pattern is set, it is a challenge to catch back up to normal snow levels by the time the snowpack typically reaches its seasonal peak in early April. Let's hope the moisture returns before February passes us by. Otherwise, we will be keeping our eyes on the sky for those spring showers, which can often make or break a streamflow forecast.

## RESERVOIRS

The lowest reservoir storage is south of the Snake River. This is result of the below normal runoff in 2012 that ranged from only 15-45% of average. From west to east - Owyhee Reservoir is 39% full, 64% of average; Salmon Falls is 16% full, 69% of average; and Oakley 27% full, 89% of average. Magic Reservoir is also low at 12% full, 33% of average because of dam maintenance work last fall. Bear Lake is in good shape at 62% full, 125% of average because of the ability to store the surplus runoff of 2011 which was 260% of average. Elsewhere across the state, reservoir storage is near average or better for the end of January.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases, dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

## STREAMFLOW

With January behind us, streamflow forecasts decreased across most of the state matching snowpack declines. Only the Bruneau River and Salmon Falls Creek forecasts held steady from last month and are still forecast at about 85% of average. From north to south, Panhandle streams are forecast at slightly above average near the Canadian border and decrease to about 85% in the Coeur d'Alene basin. Dworshak Reservoir inflow is forecast at 96% of average along with other rivers in the Clearwater basins. In the Salmon basin, the highest forecasts mirror the better snowpacks in the higher elevations with the MF Salmon forecast at 114%, and SF Salmon and Johnson Creek forecast at 106% of average. The Salmon River at White Bird is forecast at 99%. The Weiser, Payette, and Boise streams are forecast at 85-105% of average with the exception of the low elevation drainage of Mores Creek, forecast at only 72% of average. Central Idaho hosts the tallest mountains in the state, the highest snowpack and

also the highest streamflow forecasts with the Big Lost and Little Wood rivers forecast at 120% of average. In contrast, the low elevation Camas Creek near Fairfield is forecast at only 63% of average. Streams in the Upper Snake range from 75% of average in the lower elevation tributaries to average in the Snake River headwaters in Wyoming. Streams south of the Snake River are forecast at 70-100% of average. The Bear River below Stewart Dam is forecast at only 35%. An inversion with colder than normal valley temperatures froze soils and pipes and caused freezing rain in the Treasure Valley. After having snow on the ground in the Treasure Valley for nearly a month, the snow finally melted, however, frozen soils are still present. Users should watch the weather closely as rain on top of frozen soils could lead to rapid runoff until the soils thaw more. The Orchard Range SNOTEL site, 25 miles southeast of Boise, reported soil temperatures of 24F at two inches deep and 28F at eight inches deep.

Note: The volumes referenced in these narratives are the 50% Chance of Exceeding Forecast, unless otherwise noted. Users may wish to use a different forecast to reduce their risk of having too much or too little water. Forecasts published in this report are produced by the NRCS with the exception of the main-stem Snake River which are from the NWS.

## RECREATION

Cold storms created ideal skiing conditions across the state during January. However as mentioned last month, the shallow snowpacks below 6,500 feet still exist. Winter recreationists just need to climb a little higher to find deeper snowpacks with better coverage. This distinct elevation break is noticeable across most of Idaho south of the Clearwater basin. If current conditions hold true for the rest of the winter, users will see an earlier melt out in these elevations compared to the higher elevations. For the river runners, whitewater and floating conditions are looking promising with streamflow forecasts ranging from 80-120% of average for most rivers. Even the desert rivers will hopefully have a better season than last year. Don't put those skis away too soon. Let's hope we get a new card dealer that switches the current weather patterns in the second half winter back to a return of how the season started.

## NRCS AND NWS COLLABORATIVE FORECAST RELATIONSHIP

For years, NRCS and NWS Northwest River Forecast Center (NWRFC) used statistically-based water supply forecast models to predict seasonal runoff volumes. The models were run on the first of each month and grew into production of mid-month forecasts. Forecasters would share information to come up with a single forecast value. These final coordinated forecast values became the "official" forecasts published by both agencies.

This year and similar to last year, the NWRFC is using their hydrologic simulation models to produce volume forecasts. Because NWRFC models are so different from NRCS statistical models, a new paradigm was needed to replace the coordination process. The new approach is a collaborative process where information is still shared. However, a single unified forecast value is not produced. NRCS will publish forecasts from the NWRFC for the following points; these will usually reflect the forecast value on the first working day of the month. The rest of the forecasts published in the Idaho Water Supply Report are provided by NRCS. Daily NRCS Water Supply Forecasts are available from here to monitor changes between the first of month forecasts:

[http://www.id.nrcs.usda.gov/snow/watersupply/daily\\_guidance.html](http://www.id.nrcs.usda.gov/snow/watersupply/daily_guidance.html)

Snake River at King Hill

Snake River at Hells Canyon

Snake River nr Murphy

Snake River at Lower Granite

Snake River at Weiser

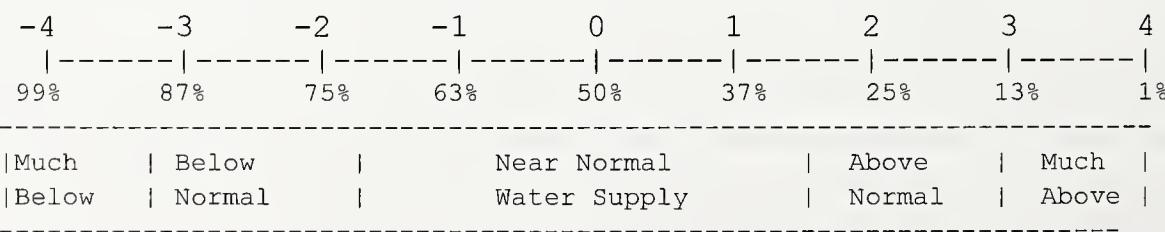
# IDAHO SURFACE WATER SUPPLY INDEX (SWSI) February 1, 2013

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1981 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

| <b>BASIN or REGION</b> | <b>SWSI Value</b> | <b>Most Recent Year With Similar SWSI Value</b> | <b>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</b> |
|------------------------|-------------------|---|--|
| Northern Panhandle     | 1.0               | 2008  | NA   |
| Spokane                | -1.5              | 1995/1998                                       | NA   |
| Clearwater             | 0.0               | 2000  | NA   |
| Salmon                 | -0.3              | 2010  | NA   |
| Weiser                 | -0.5              | 2000/2003                                       | NA   |
| Payette                | 0.5               | 2008  | NA   |
| Boise                  | -0.3              | 2010  | -1.6   |
| Big Wood               | 0.5               | 2012  | 0.4  |
| Little Wood            | 0.8               | 2012  | -1.5   |
| Big Lost               | 1.5               | 2011  | 0.5  |
| Little Lost            | 0.3               | 2006  | 1.3  |
| Teton                  | -0.8              | 2005  | -3.8   |
| Henrys Fork            | -0.3              | 2011  | -3.0   |
| Snake (Heise)          | -1.0              | 1989/1990                                       | -1.5   |
| Oakley                 | -1.3              | 1981/1987                                       | 0.1  |
| Salmon Falls           | -1.3              | 2000/2008                                       | -1.0   |
| Bruneau                | -0.3              | 2010  | NA   |
| Owyhee                 | 0.5               | 2005  | -3.3   |
| Bear River             | 0.5               | 2001  | -3.5   |

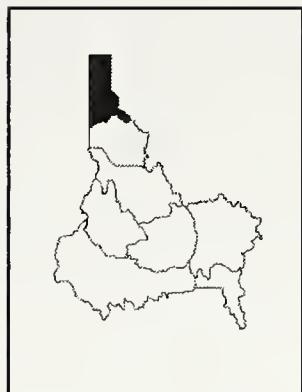
## **SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION**



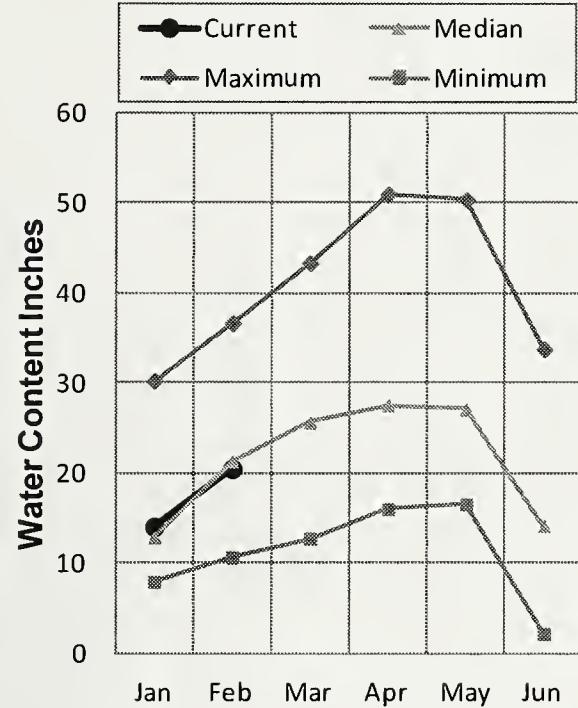
NA=Not Available / Not Applicable; Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

# PANHANDLE REGION

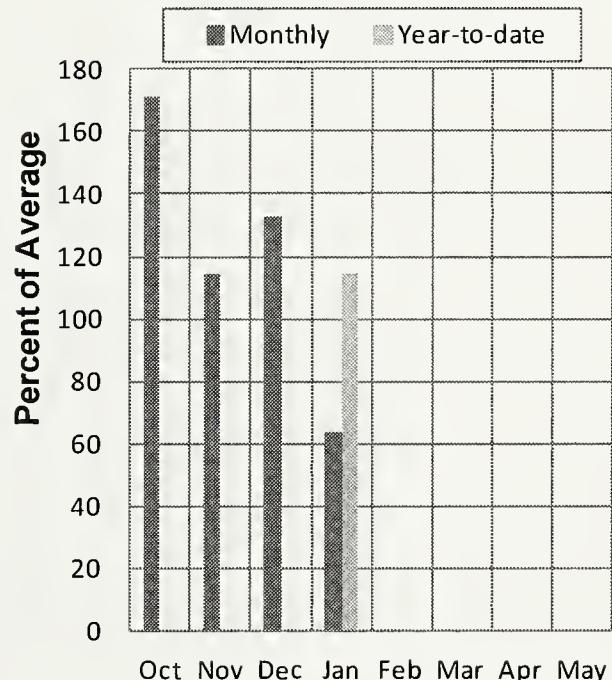
## FEBRUARY 1, 2013



### Mountain Snowpack (inches) PANHANDLE REGION



### Mountain Precipitation PANHANDLE REGION



### WATER SUPPLY OUTLOOK

January was the first month this water year that the Panhandle recorded drier than normal weather. Water year to date precipitation since October 1 remains above average, however January brought only 64% of normal precipitation for the month. As a result, the Northern Panhandle's snowpack decreased 25 percentage points from 126% of normal on January 1 to near normal this month. Snow in the Spokane basin decreased about 10% from last month and is currently 84% of normal. Current snow water contents amounts are similar to last year at this time in the Northern Panhandle, but little less than last year for the Spokane basin. Water levels are 121% of average in Pend Oreille Lake, 89% in Priest Lake and 69% in Coeur d'Alene Lake. Streamflow forecasts are highest for the Priest River at 115% of average. Forecasts are near average for the Kootenai, Moyie, and Clark Fork rivers, as well as, Boundary Creek and Pend Oreille Lake inflow. Further south, forecasts are 80-88% of average for the NF Coeur d'Alene, St. Joe, and Spokane rivers.

**PANHANDLE REGION**  
Streamflow Forecasts - February 1, 2013

| Forecast Point                     | Forecast Period | Future Conditions |                 |                       |          |                 |                 | 30-Yr Avg.<br>(1000AF) |  |
|------------------------------------|-----------------|-------------------|-----------------|-----------------------|----------|-----------------|-----------------|------------------------|--|
|                                    |                 | << Drier          |                 | Chance Of Exceeding * |          | Wetter >>       |                 |                        |  |
|                                    |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 50%<br>(1000AF)       | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |  |
| Kootenai R at Leonia (1,2)         | APR-JUL         | 5430              | 6270            | 6650                  | 101      | 7030            | 7870            | 6600                   |  |
|                                    | APR-SEP         | 6430              | 7230            | 7600                  | 100      | 7970            | 8770            | 7590                   |  |
| Moyie R at Eastport                | APR-JUL         | 315               | 365             | 400                   | 107      | 435             | 485             | 375                    |  |
|                                    | APR-SEP         | 325               | 380             | 415                   | 108      | 450             | 505             | 385                    |  |
| Boundary Ck nr Porthill            | APR-JUL         | 93                | 107             | 117                   | 100      | 127             | 141             | 117                    |  |
|                                    | APR-SEP         | 96                | 111             | 121                   | 98       | 131             | 146             | 123                    |  |
| Clark Fork at Whitehorse Rpd (1,2) | APR-JUL         | 8103              | 9820            | 10600                 | 101      | 11380           | 13097           | 10500                  |  |
|                                    | APR-SEP         | 9052              | 10873           | 11700                 | 102      | 12527           | 14348           | 11500                  |  |
| Pend Oreille Lake Inflow (2)       | APR-JUL         | 9823              | 11060           | 11900                 | 101      | 12740           | 13977           | 11800                  |  |
|                                    | APR-SEP         | 10910             | 12214           | 13100                 | 102      | 13986           | 15290           | 12800                  |  |
| Priest R nr Priest River (1,2)     | APR-JUL         | 735               | 833             | 900                   | 115      | 967             | 1065            | 780                    |  |
|                                    | APR-SEP         | 770               | 877             | 950                   | 115      | 1023            | 1130            | 830                    |  |
| NF Coeur d'Alene R at Enaville     | APR-JUL         | 355               | 485             | 570                   | 81       | 655             | 785             | 700                    |  |
|                                    | APR-SEP         | 390               | 515             | 605                   | 82       | 695             | 820             | 740                    |  |
| St. Joe R at Calder                | APR-JUL         | 710               | 840             | 925                   | 88       | 1010            | 1140            | 1050                   |  |
|                                    | APR-SEP         | 765               | 895             | 985                   | 88       | 1070            | 1210            | 1120                   |  |
| Spokane R nr Post Falls (2)        | APR-JUL         | 1360              | 1730            | 1980                  | 83       | 2230            | 2600            | 2390                   |  |
|                                    | APR-SEP         | 1440              | 1810            | 2060                  | 83       | 2310            | 2680            | 2480                   |  |
| Spokane R at Long Lake (2)         | APR-JUL         | 1560              | 1960            | 2240                  | 86       | 2520            | 2920            | 2620                   |  |
|                                    | APR-SEP         | 1750              | 2160            | 2440                  | 86       | 2720            | 3130            | 2850                   |  |

| PANHANDLE REGION<br>Reservoir Storage (1000 AF) - End of January |  |  |  | PANHANDLE REGION<br>Watershed Snowpack Analysis - February 1, 2013 |  |  |  |
|--|--|--|--|--|--|--|--|
|--|--|--|--|--|--|--|--|

| Reservoir     | Usable Capacity | *** Usable Storage *** |           |        | Watershed                 | Number of Data Sites | This Year as % of |         |
|---------------|-----------------|------------------------|-----------|--------|---------------------------|----------------------|-------------------|---------|
|               |                 | This Year              | Last Year | Avg    |                           |                      | Last Yr           | Average |
| HUNGRY HORSE  | 3451.0          | 2973.3                 | 2896.0    | 2375.0 | Kootenai ab Bonners Ferry | 10                   | 91                | 96      |
| FLATHEAD LAKE | 1791.0          | 966.5                  | 933.9     | 955.6  | Moyie River               | 3                    | 85                | 91      |
| NOXON RAPIDS  | 335.0           | 316.5                  | 316.2     | 315.0  | Priest River              | 5                    | 106               | 116     |
| Pend Oreille  | 1561.3          | 914.7                  | 632.2     | 753.9  | Pend Oreille River        | 64                   | 89                | 92      |
| Coeur d'Alene | 238.5           | 66.2                   | 49.6      | 96.3   | Rathdrum Creek            | 4                    | 155               | 99      |
| Priest Lake   | 119.3           | 50.4                   | 55.5      | 56.7   | Coeur d'Alene River       | 6                    | 86                | 77      |
|               |                 |                        |           |        | St. Joe River             | 4                    | 86                | 83      |
|               |                 |                        |           |        | Spokane River             | 14                   | 97                | 84      |
|               |                 |                        |           |        | Palouse River             | 2                    | 91                | 87      |

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

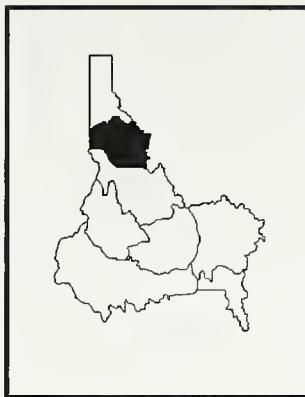
The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

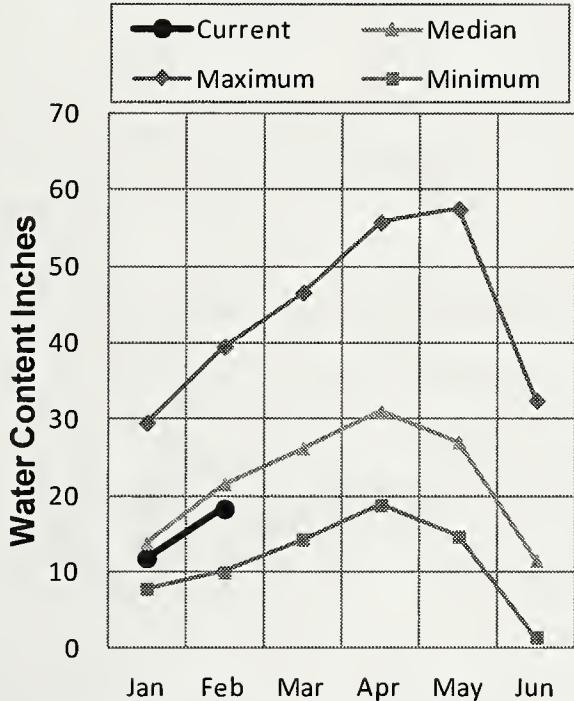
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# CLEARWATER RIVER BASIN

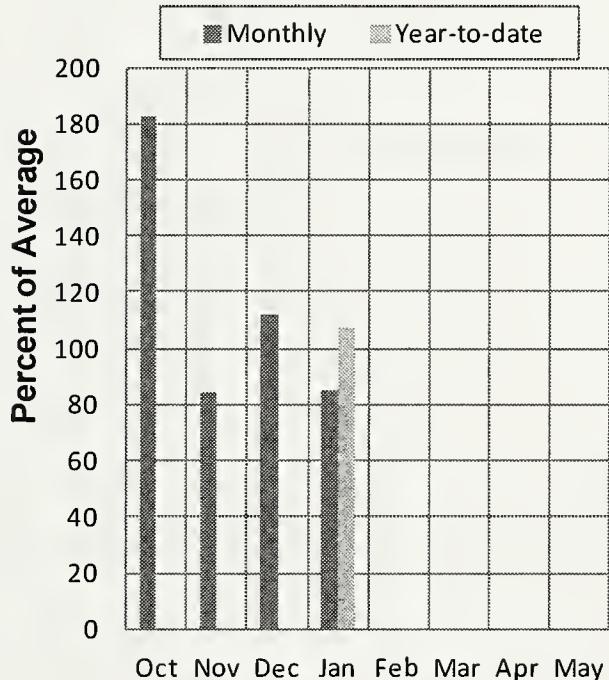
FEBRUARY 1, 2013



## Mountain Snowpack (inches) CLEARWATER RIVER BASIN



## Mountain Precipitation CLEARWATER RIVER BASIN



## WATER SUPPLY OUTLOOK

The Clearwater basin had more precipitation in January than the rest of north Idaho keeping its snowpacks percentages similar to last month. January produced 85% of the normal monthly precipitation; about 10-15% better than the precipitation in adjacent basins to the north and south. Water year to date precipitation since October 1 is 107% of average. February 1 snowpacks are 85% of normal, only down 2 percentage points from last month. Dworshak Reservoir is storing 2,511,400 acre-feet which is 108% of average, 72% of capacity. Dworshak inflow is forecast at 96% for the April-July period. Other streamflow forecasts are also near average including those for the Selway and Locsha rivers, as well as, for the Clearwater River at Orofino. There is still time to boost snowpacks to average levels by April 1, but it will take 33% above average precipitation between now and early April to attain that mark.

**CLEARWATER RIVER BASIN**  
**Streamflow Forecasts - February 1, 2013**

| Forecast Point                 | Forecast | Future Conditions |                 |                       |                 |            |                 | 30-Yr Avg.      |
|--------------------------------|----------|-------------------|-----------------|-----------------------|-----------------|------------|-----------------|-----------------|
|                                |          | <== Drier ==>     |                 | Chance Of Exceeding * |                 | Wetter ==> |                 |                 |
|                                |          | Period            | 90%<br>(1000AF) | 70%<br>(1000AF)       | 50%<br>(1000AF) | (% AVG.)   | 30%<br>(1000AF) | 10%<br>(1000AF) |
| Selway R nr Lowell             | APR-JUL  | 1490              | 1720            | 1870                  | 97              | 2020       | 2250            | 1920            |
|                                | APR-SEP  | 1590              | 1810            | 1970                  | 98              | 2130       | 2350            | 2020            |
| Lochsa R nr Lowell             | APR-JUL  | 1090              | 1260            | 1370                  | 97              | 1480       | 1650            | 1410            |
|                                | APR-SEP  | 1150              | 1320            | 1440                  | 97              | 1560       | 1730            | 1480            |
| Dworshak Res Inflow            | APR-JUL  | 1590              | 2090            | 2310                  | 96              | 2530       | 3030            | 2410            |
|                                | APR-SEP  | 1730              | 2240            | 2470                  | 96              | 2700       | 3210            | 2570            |
| Clearwater R at Orofino (1)    | APR-JUL  | 2370              | 3580            | 4130                  | 96              | 4680       | 5890            | 4310            |
|                                | APR-SEP  | 2620              | 3830            | 4380                  | 97              | 4930       | 6140            | 4540            |
| Clearwater R at Spalding (1,2) | APR-JUL  | 3590              | 5640            | 6570                  | 95              | 7500       | 9550            | 6890            |
|                                | APR-SEP  | 4000              | 6050            | 6980                  | 96              | 7910       | 9960            | 7270            |

**CLEARWATER RIVER BASIN**  
**Reservoir Storage (1000 AF) - End of January** | **CLEARWATER RIVER BASIN**  
**Watershed Snowpack Analysis - February 1, 2013**

| Reservoir | Usable Capacity | *** Usable Storage *** |           |        | Watershed              | Number of Data Sites | This Year as % of |         |
|-----------|-----------------|------------------------|-----------|--------|------------------------|----------------------|-------------------|---------|
|           |                 | This Year              | Last Year | Avg    |                        |                      | Last Yr           | Average |
| Dworshak  | 3468.0          | 2511.4                 | 2288.9    | 2335.0 | North Fork Clearwater  | 9                    | 86                | 85      |
|           |                 |                        |           |        | Lochsa River           | 2                    | 76                | 86      |
|           |                 |                        |           |        | Selway River           | 4                    | 82                | 88      |
|           |                 |                        |           |        | Clearwater Basin Total | 16                   | 85                | 86      |

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

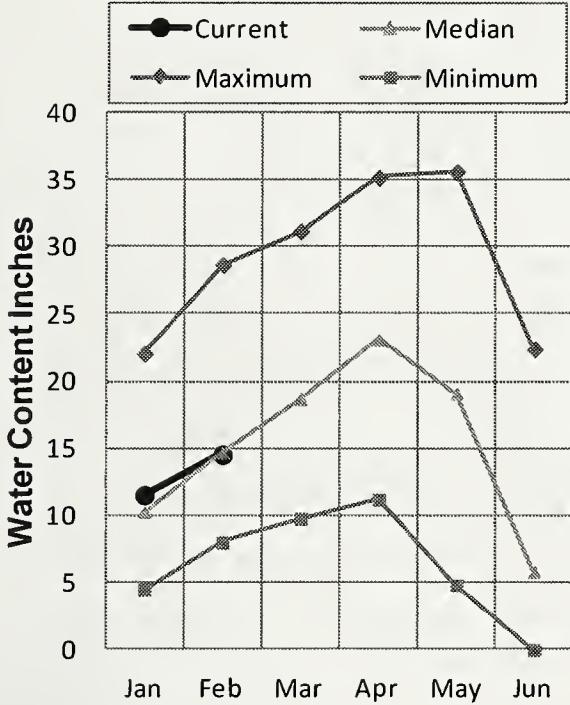
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

# SALMON RIVER BASIN

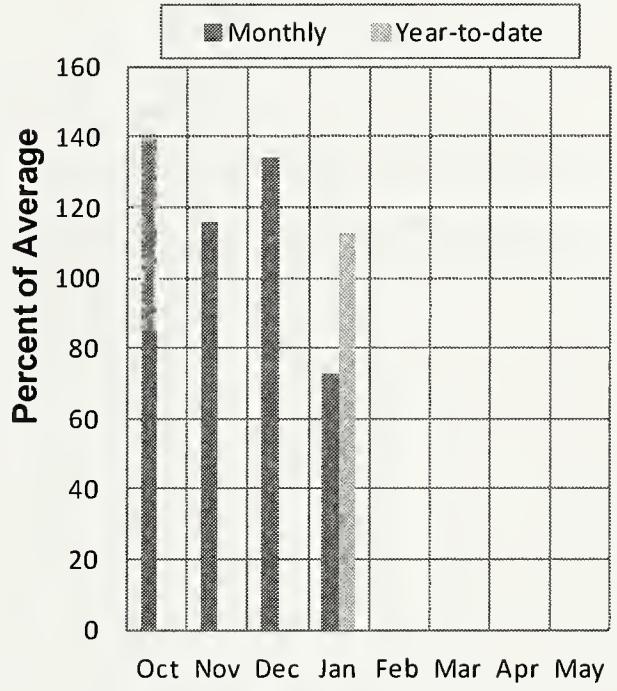
FEBRUARY 1, 2013



## Mountain Snowpack (inches) SALMON RIVER BASIN



## Mountain Precipitation SALMON RIVER BASIN



## WATER SUPPLY OUTLOOK

Water supplies in the Salmon Basin remain promising despite January being drier than normal. Basin-wide January precipitation was 73% of average, making it the first month this water year with less than average amounts. Monthly precipitation totals ranged widely across the basin. For example Mountain Meadows SNOTEL near the northern divide with the Clearwater basin, recorded 126% of normal precipitation for the month (5.9 inches), while Banner Summit SNOTEL near the southern divide with the Payette basin measured 49% of normal in January (2.7 inches). Water year to date precipitation since the beginning of October is above average, but dropped about 13 percentage points in the last month. The split in snowpack percentages between high and low elevations is still present, but less than last month. As of February 1, SNOTEL sites above 6,500 feet measured 107% of normal snow, while those below 6,500 feet had 90% of normal snow; last month the split was 123% to 80%. Overall the Salmon basin snowpack is near normal based on the 1981-2010 medians. Streamflow forecasts call for 114% of average flow this summer for the MF Salmon, while the SF Salmon and mainstem Salmon are closer to average. The lowest forecast is for the Lemhi River at 88% of average. January's drier than normal weather dropped forecasts about 10-15% in one month. Let's hope the slide does not continue through February.

SAIMON RIVER BASIN  
Streamflow Forecasts - February 1, 2013

| Forecast Point             | Forecast | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                       |                 |                 |          |                 | 30-Yr Avg.      |
|----------------------------|----------|--|-----------------------|-----------------|-----------------|----------|-----------------|-----------------|
|                            |          | Period   | Chance Of Exceeding * |                 |                 |          |                 |                 |
|                            |          |  | 90%<br>(1000AF)       | 70%<br>(1000AF) | 50%<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |
| Salmon R at Salmon (1)     | APR-JUL  | 480  | 715                   | 820             | 106             | 925      | 1160            | 775             |
|                            | APR-SEP  | 555  | 825                   | 950             | 106             | 1070     | 1350            | 900             |
| Lemhi R nr Lemhi           | APR-JUL  | 35   | 52                    | 65              | 88              | 80       | 104             | 74              |
|                            | APR-SEP  | 44   | 64                    | 79              | 88              | 96       | 123             | 90              |
| MF Salmon R at MF Lodge    | APR-JUL  | 515  | 675                   | 785             | 114             | 895      | 1050            | 690             |
|                            | APR-SEP  | 575  | 755                   | 875             | 114             | 995      | 1170            | 770             |
| SF Salmon R nr Krassel RS  | APR-JUL  | 210  | 255                   | 285             | 106             | 315      | 360             | 270             |
|                            | APR-SEP  | 225  | 270                   | 300             | 103             | 330      | 375             | 290             |
| Johnson Ck at Yellow Pine  | APR-JUL  | 158  | 186                   | 205             | 107             | 225      | 250             | 191             |
|                            | APR-SEP  | 172  | 200                   | 220             | 107             | 240      | 270             | 205             |
| Salmon R at White Bird (1) | APR-JUL  | 3360   | 4720                  | 5340            | 99              | 5960     | 7320            | 5370            |
|                            | APR-SEP  | 3720   | 5230                  | 5910            | 100             | 6590     | 8100            | 5940            |

| SALMON RIVER BASIN                           |                 |                        |           | SALMON RIVER BASIN                             |                      |                   |         |
|--|-----------------|------------------------|-----------|--|----------------------|-------------------|---------|
| Reservoir Storage (1000 AF) - End of January |                 |                        |           | Watershed Snowpack Analysis - February 1, 2013 |                      |                   |         |
| Reservoir                                    | Usable Capacity | *** Usable Storage *** |           | Watershed                                      | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year |  |                      | Last Yr           | Average |
|  |                 |                        | Avg       |  |                      |                   |         |
|  |                 |                        |           | Salmon River ab Salmon                         | 8                    | 110               | 108     |
|  |                 |                        |           | Lemhi River                                    | 6                    | 132               | 108     |
|  |                 |                        |           | Middle Fork Salmon River                       | 3                    | 121               | 111     |
|  |                 |                        |           | South Fork Salmon River                        | 3                    | 119               | 105     |
|  |                 |                        |           | Little Salmon River                            | 4                    | 90                | 86      |
|  |                 |                        |           | Salmon Basin Total                             | 23                   | 109               | 101     |

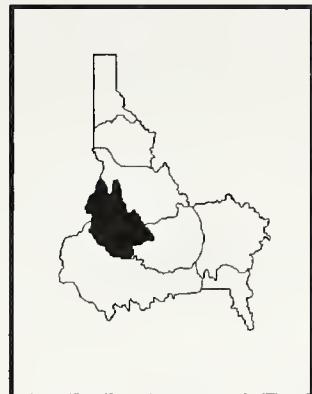
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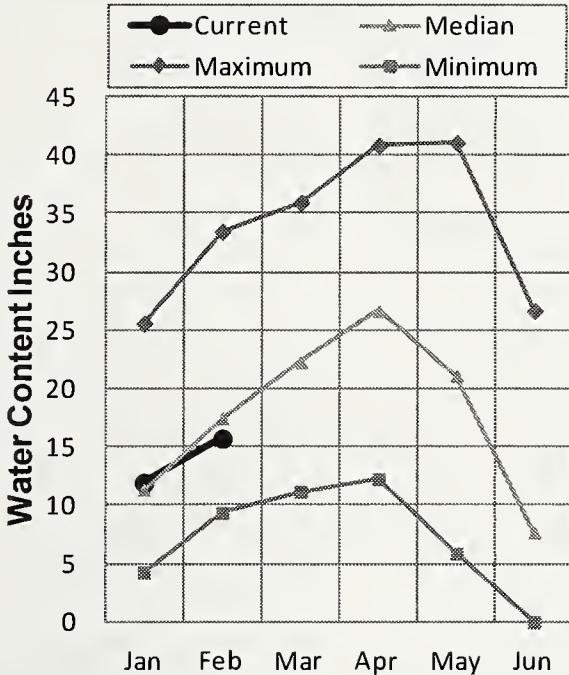
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# WEISER, PAYETTE, BOISE RIVER BASINS

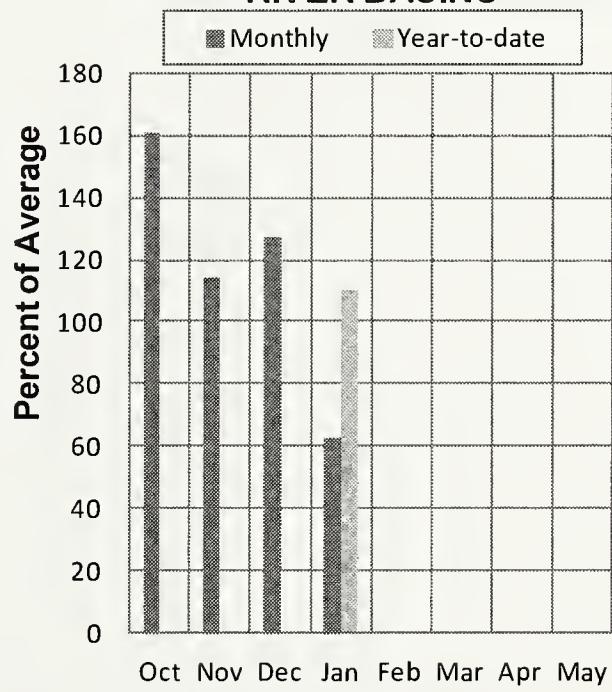
FEBRUARY 1, 2013



## Mountain Snowpack (inches) WEISER, PAYETTE, BOISE RIVER BASINS



## Mountain Precipitation WEISER, PAYETTE, BOISE RIVER BASINS



## WATER SUPPLY OUTLOOK

The Weiser, Payette and Boise basins were not in sync in January. Monthly precipitation ranged from near average in the Weiser basin, to 67% in the Payette, down to half of normal in the Boise basin. The Weiser basin has the best water year to date precipitation that started October 1, 2012 at 123% of normal, while the Payette is 116% and the Boise has now slipped a few points below average. The best February 1 snowpack is in the Payette basin at 85% of normal, followed by the Boise and Weiser at about 75%. The spread in snowpack percentages across elevation bands continues to be wide. A few SNOTEL sites above 7,000 feet have above normal snowpacks, while most sites in the 5,500 to 6,000 foot band have less than half their normal snow. This month's snow is now less than last year at this time in the Boise and Weiser basins, while the Payette basin's snow is similar to last year. Combining Deadwood and Cascade reservoirs, storage in the Payette system is 114% of average. The Boise system is 107% of average. Most streamflow forecasts in these basins are 90-105% of average; the exceptions include the SF Payette at Lowman at 84% and Mores Creek at 72%.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts - February 1, 2013

| Forecast Point                         | Forecast Period | Future Conditions |                 |                       |          | Wetter   |          |            |
|--|-----------------|-------------------|-----------------|-----------------------|----------|----------|----------|------------|
|  |                 | Drier             |                 | Chance Of Exceeding * |          | 30%      | 10%      | 30-Yr Avg. |
|  |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 50%<br>(1000AF)       | (% AVG.) | (1000AF) | (1000AF) | (1000AF)   |
| Weiser R nr Weiser (1)                 | FEB-JUL         | 275               | 485             | 600                   | 98       | 730      | 1050     | 615        |
|  | APR-JUL         | 163               | 290             | 360                   | 97       | 440      | 635      | 370        |
|  | APR-SEP         | 179               | 310             | 385                   | 96       | 465      | 670      | 400        |
| SF Payette R at Lowman                 | APR-JUL         | 243               | 296             | 335                   | 84       | 376      | 442      | 400        |
|  | APR-SEP         | 277               | 336             | 380                   | 84       | 426      | 499      | 455        |
| Deadwood Resv Inflow (1,2)             | APR-JUL         | 77                | 105             | 118                   | 96       | 131      | 159      | 123        |
|  | APR-SEP         | 81                | 112             | 126                   | 96       | 140      | 171      | 131        |
| Lake Fork Payette R nr McCall          | APR-JUL         | 68                | 78              | 85                    | 106      | 93       | 104      | 80         |
|  | APR-SEP         | 70                | 80              | 88                    | 106      | 96       | 108      | 83         |
| NF Payette R at Cascade (1,2)          | APR-JUL         | 320               | 445             | 500                   | 103      | 555      | 680      | 485        |
|  | APR-SEP         | 320               | 450             | 510                   | 103      | 570      | 700      | 495        |
| NF Payette R nr Banks (2)              | APR-JUL         | 485               | 585             | 655                   | 105      | 725      | 825      | 625        |
|  | APR-SEP         | 485               | 595             | 670                   | 105      | 745      | 855      | 640        |
| Payette R nr Horseshoe Bend (1,2)      | APR-JUL         | 1030              | 1350            | 1500                  | 101      | 1650     | 1970     | 1480       |
|  | APR-SEP         | 1090              | 1470            | 1650                  | 101      | 1830     | 2210     | 1630       |
| Boise R nr Twin Springs (1)            | APR-JUL         | 310               | 450             | 515                   | 88       | 580      | 720      | 585        |
|  | APR-SEP         | 340               | 490             | 560                   | 88       | 630      | 780      | 635        |
| SF Boise R at Anderson Ranch Dam (1,2) | APR-JUL         | 255               | 395             | 460                   | 97       | 525      | 665      | 475        |
|  | APR-SEP         | 275               | 425             | 490                   | 96       | 555      | 705      | 510        |
| Mores Ck nr Arrowrock Dam              | APR-JUL         | 43                | 65              | 83                    | 72       | 103      | 136      | 115        |
|  | APR-SEP         | 45                | 68              | 86                    | 72       | 107      | 141      | 119        |
| Boise R nr Boise (1,2)                 | APR-JUN         | 662               | 901             | 1010                  | 89       | 1119     | 1358     | 1140       |
|  | APR-JUL         | 635               | 975             | 1130                  | 90       | 1280     | 1620     | 1260       |
|  | APR-SEP         | 735               | 1080            | 1230                  | 90       | 1380     | 1720     | 1360       |

WEISER, PAYETTE, BOISE RIVER BASINS  
Reservoir Storage (1000 AF) - End of January

WEISER, PAYETTE, BOISE RIVER BASINS  
Watershed Snowpack Analysis - February 1, 2013

| Reservoir               | Usable Capacity | *** Usable Storage *** |           |       | Watershed                 | Number of Data Sites | This Year as % of |         |
|-------------------------|-----------------|------------------------|-----------|-------|---------------------------|----------------------|-------------------|---------|
|                         |                 | This Year              | Last Year | Avg   |                           |                      | Last Yr           | Average |
| Mann Creek              | 11.1            | 3.1                    | 2.6       | 3.6   | Mann Creek                | 1                    | 106               | 84      |
| Cascade                 | 693.2           | 520.9                  | 501.6     | 455.5 | Weiser River              | 7                    | 93                | 76      |
| Deadwood                | 161.9           | 97.1                   | 96.4      | 87.9  | North Fork Payette        | 9                    | 101               | 88      |
| Anderson Ranch          | 450.2           | 270.2                  | 377.2     | 256.4 | South Fork Payette        | 5                    | 93                | 90      |
| Arrowrock               | 272.2           | 206.7                  | 238.5     | 174.8 | Payette Basin Total       | 16                   | 97                | 85      |
| Lucky Peak              | 293.2           | 97.9                   | 94.3      | 103.5 | Middle & North Fork Boise | 5                    | 81                | 78      |
| Lake Lowell (Deer Flat) | 165.2           | 118.9                  | 120.1     | 92.8  | South Fork Boise River    | 7                    | 91                | 91      |
|                         |                 |                        |           |       | Mores Creek               | 5                    | 67                | 58      |
|                         |                 |                        |           |       | Boise Basin Total         | 14                   | 79                | 75      |
|                         |                 |                        |           |       | Canyon Creek              | 2                    | 48                | 44      |

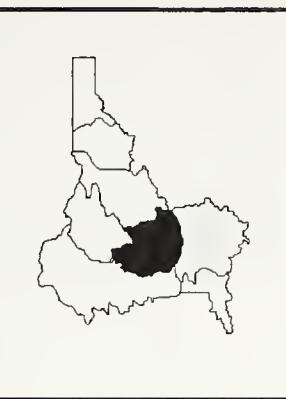
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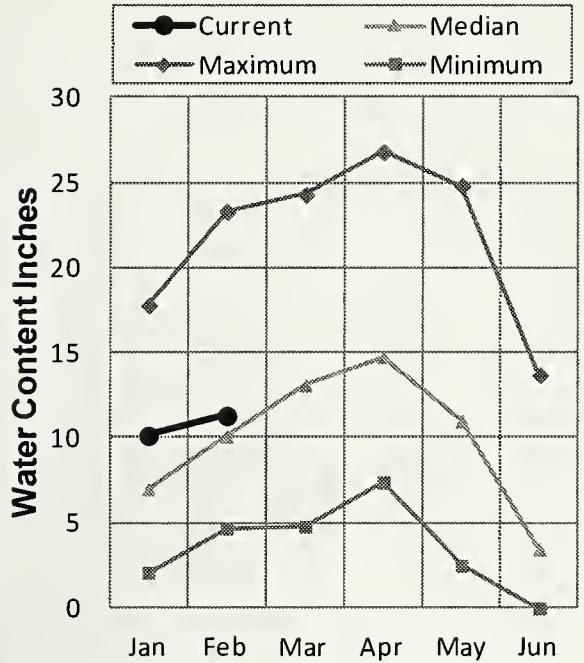
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# WOOD and LOST RIVER BASINS

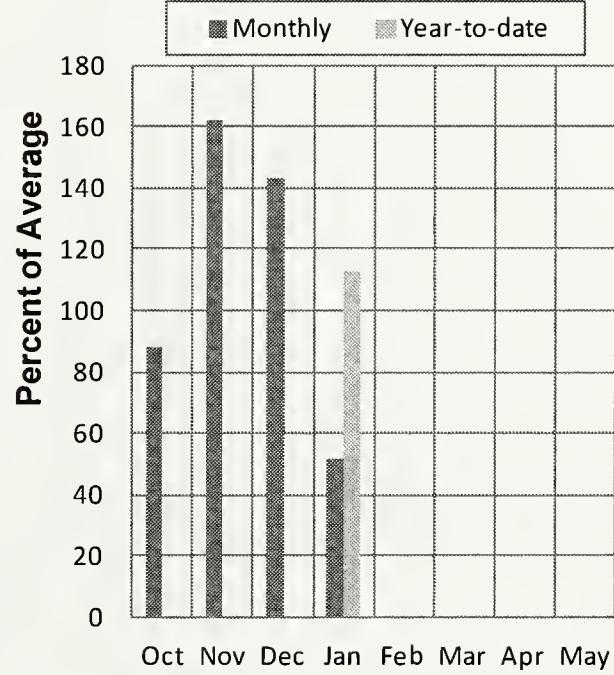
FEBRUARY 1, 2013



## Mountain Snowpack (inches) WOOD AND LOST RIVER BASINS



## Mountain Precipitation WOOD AND LOST RIVER BASINS



## WATER SUPPLY OUTLOOK

January was a dry month in the Wood and Lost basins, but water supplies are still okay for now. Monthly precipitation in January was half of average in the Big Wood, Little Wood and Big Lost basins. The Little Lost and Birch basins fared slightly better with 70% of average precipitation for the month. Thanks to excellent precipitation in November and December, water year precipitation since October 1 remains above average, ranging from 105% in the Little Lost and Birch basins to 124% in the Little Wood. Snowpacks are best in the Big Lost basin with 131% of the 1981-2010 median. Snow in the Little Lost basin is 117% of median, followed by the Big Wood at 101% and Little Wood at 98%. Lower elevation snow measuring sites continue to have much less snow than normal. Two sites near Fairfield perfectly demonstrate this, Camas Creek Divide SNOTEL at 5,710 feet has 46% of normal snow and Soldier Ranger Station SNOTEL at 5,740 feet has 60% of normal snow. Water storage is near average in Little Wood Reservoir and 123% of average in Mackay Reservoir. Magic's storage is only 33% of average, but is recovering now that maintenance work that required drafting is finished. Most streamflow forecasts range from 95-120% of average. The only April to July forecasts for much less than average streamflow is Camas Creek near Blaine at 63%. Hopefully the storm track returns to central Idaho preserving an above average water supply.

WOOD AND LOST RIVER BASINS  
Streamflow Forecasts - February 1, 2013

| Forecast Point                | Forecast Period | Drier                 |                 |          |          | Future Conditions |          |          | Wetter   |            |  |
|-------------------------------|-----------------|-----------------------|-----------------|----------|----------|-------------------|----------|----------|----------|------------|--|
|                               |                 | Chance Of Exceeding * |                 | 50%      |          | 30%               |          | 10%      |          | 30-Yr Avg. |  |
|                               |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | (1000AF) | (% AVG.) | (1000AF)          | (1000AF) | (1000AF) | (1000AF) |            |  |
| Big Wood R at Hailey (1)      | APR-JUL         | 117                   | 215             | 260      | 111      | 305               | 405      | 235      | 235      | 235        |  |
|                               | APR-SEP         | 134                   | 245             | 295      | 111      | 345               | 455      | 265      | 265      |            |  |
| Big Wood R ab Magic Res       | APR-JUL         | 95                    | 145             | 187      | 110      | 235               | 325      | 170      | 170      | 170        |  |
|                               | APR-SEP         | 103                   | 155             | 200      | 110      | 250               | 345      | 182      | 182      |            |  |
| Camas Ck nr Blaine            | APR-JUL         | 13.5                  | 33              | 52       | 63       | 75                | 115      | 82       | 82       | 82         |  |
|                               | APR-SEP         | 14.1                  | 34              | 53       | 64       | 76                | 117      | 83       | 83       |            |  |
| Big Wood R bl Magic Dam (2)   | APR-JUL         | 27                    | 121             | 240      | 96       | 245               | 340      | 250      | 250      | 250        |  |
|                               | APR-SEP         | 93                    | 190             | 255      | 96       | 320               | 415      | 265      | 265      |            |  |
| Little Wood R ab High Five Ck | MAR-JUL         | 40                    | 67              | 89       | 116      | 114               | 157      | 77       | 77       | 77         |  |
|                               | MAR-SEP         | 44                    | 72              | 96       | 117      | 123               | 169      | 82       | 82       |            |  |
| Little Wood R near Carey (2)  | MAR-JUL         | 53                    | 73              | 87       | 101      | 101               | 121      | 86       | 86       | 86         |  |
|                               | MAR-SEP         | 57                    | 79              | 94       | 102      | 109               | 131      | 92       | 92       |            |  |
|                               | APR-JUL         | 45                    | 65              | 79       | 103      | 93                | 113      | 77       | 77       |            |  |
| Big Lost R at Howell Ranch    | APR-JUL         | 115                   | 158             | 188      | 118      | 218               | 261      | 159      | 159      | 159        |  |
|                               | APR-SEP         | 126                   | 176             | 210      | 117      | 244               | 294      | 180      | 180      |            |  |
| Big Lost R Below Mackay Res   | APR-JUL         | 75                    | 120             | 150      | 122      | 180               | 225      | 123      | 123      | 123        |  |
|                               | APR-SEP         | 92                    | 144             | 179      | 119      | 214               | 266      | 150      | 150      |            |  |
| Little Lost R nr Howe         | APR-JUL         | 17.7                  | 24              | 28       | 100      | 33                | 41       | 28       | 28       | 28         |  |
|                               | APR-SEP         | 21                    | 29              | 34       | 100      | 40                | 50       | 34       | 34       |            |  |
| Camas Ck at Camas             | APR-JUL         | 14.6                  | 27              | 35       | 125      | 43                | 55       | 28       | 28       |            |  |

WOOD AND LOST RIVER BASINS  
Reservoir Storage (1000 AF) - End of January | WOOD AND LOST RIVER BASINS  
Watershed Snowpack Analysis - February 1, 2013

| Reservoir   | Usable Capacity | *** Usable Storage *** |           |      | Watershed                 | Number of Data Sites | This Year as % of |         |
|-------------|-----------------|------------------------|-----------|------|---------------------------|----------------------|-------------------|---------|
|             |                 | This Year              | Last Year | Avg  |                           |                      | Last Yr           | Average |
| Magic       | 191.5           | 22.7                   | 121.1     | 68.9 | Big Wood ab Hailey        | 8                    | 126               | 113     |
| Little Wood | 30.0            | 16.0                   | 26.4      | 16.3 | Camas Creek               | 3                    | 54                | 50      |
| Mackay      | 44.4            | 31.9                   | 36.8      | 26.0 | Big Wood Basin Total      | 11                   | 112               | 101     |
|             |                 |                        |           |      | Fish Creek                | 3                    | 109               | 84      |
|             |                 |                        |           |      | Little Wood River         | 7                    | 131               | 98      |
|             |                 |                        |           |      | Big Lost River            | 6                    | 190               | 133     |
|             |                 |                        |           |      | Little Lost River         | 3                    | 170               | 117     |
|             |                 |                        |           |      | Birch-Medicine Lodge Cree | 2                    | 141               | 112     |
|             |                 |                        |           |      | Camas-Beaver Creeks       | 4                    | 151               | 99      |

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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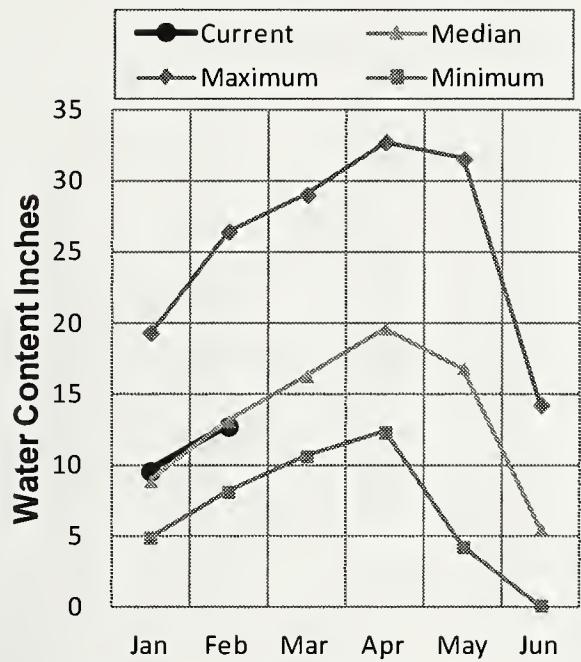
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# UPPER SNAKE BASIN

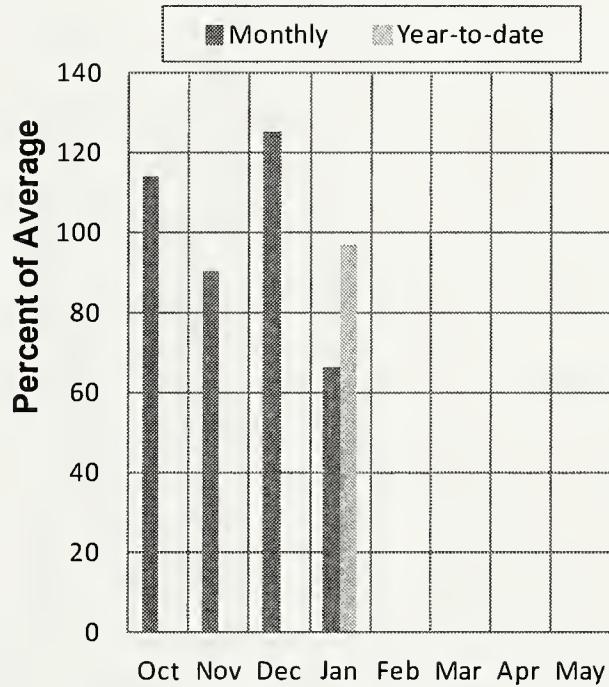
FEBRUARY 1, 2013



## Mountain Snowpack (inches) UPPER SNAKE RIVER BASIN



## Mountain Precipitation UPPER SNAKE RIVER BASIN



## WATER SUPPLY OUTLOOK

Despite less than average precipitation in January water supplies still look adequate. Monthly precipitation in the Upper Snake was 66% of average in January, leaving water year to date precipitation since October 1 slightly less than normal at 97%. Despite a better start this winter, snowpacks are now less than last year at this time for most parts of the basin. Compared to the 1981-2010 median, snow is 90-100% of normal in the Henrys Fork, Teton and Snake River above Palisades basins. The Willow, Blackfoot and Portneuf basins have a snowpack that is about 70% of normal. Reservoir storage is best in Jackson Lake at 143% of average and least in Palisades with 61% of average. Taken together Jackson Lake and Palisades are storing 88% of average, 52% of capacity or 1,178,000 acre-feet. Collectively reservoirs on the Henrys Fork are storing 204,000 acre-feet which is slightly more than average for Henrys Lake, Grassy Lake and Island Park reservoirs at this time of year. American Falls has 1,104,700 acre-feet, an average storage amount for now and 66% of its capacity and should be close to full by April 1. Most streamflow forecasts are 75-100% of average, including the Snake River at Heise forecast for 2,820,000 acre-feet or 87% of average. Based on the Surface Water Supply Index, Heise runoff near 90% of average is needed to provide marginally adequate surface irrigation supplies. Water users should watch the weather conditions closely this month and into March for negative impacts on their water supplies.

UPPER SNAKE RIVER BASIN  
Streamflow Forecasts - February 1, 2013

| Forecast Point                | Forecast Period | Future Conditions |                 |                       |          | Wetter          |                 |      | 30-Yr Avg. |  |
|-------------------------------|-----------------|-------------------|-----------------|-----------------------|----------|-----------------|-----------------|------|------------|--|
|                               |                 | Drier             |                 | Chance Of Exceeding * |          | Wetter          |                 |      |            |  |
|                               |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 50%<br>(1000AF)       | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |      |            |  |
| Henry's Fork nr Ashton (2)    | APR-JUL         | 378               | 451             | 505                   | 95       | 562             | 651             | 530  |            |  |
|                               | APR-SEP         | 527               | 616             | 680                   | 96       | 747             | 853             | 710  |            |  |
| Henry's Fork nr Rexburg (2)   | APR-JUL         | 1002              | 1168            | 1280                  | 91       | 1392            | 1558            | 1400 |            |  |
|                               | APR-SEP         | 1336              | 1523            | 1650                  | 92       | 1777            | 1964            | 1790 |            |  |
| Falls R nr Ashton (2)         | APR-JUL         | 251               | 291             | 320                   | 88       | 350             | 397             | 365  |            |  |
|                               | APR-SEP         | 300               | 347             | 380                   | 87       | 415             | 469             | 435  |            |  |
| Teton R nr Driggs             | APR-JUL         | 81                | 103             | 120                   | 78       | 138             | 166             | 154  |            |  |
|                               | APR-SEP         | 102               | 131             | 152                   | 79       | 175             | 212             | 193  |            |  |
| Teton R nr St. Anthony        | APR-JUL         | 204               | 256             | 295                   | 81       | 337             | 403             | 365  |            |  |
|                               | APR-SEP         | 248               | 310             | 355                   | 82       | 404             | 481             | 435  |            |  |
| Snake R at Flagg Ranch        | APR-JUL         | 368               | 426             | 465                   | 100      | 504             | 562             | 465  |            |  |
|                               | APR-SEP         | 401               | 463             | 505                   | 99       | 547             | 609             | 510  |            |  |
| Snake R nr Moran (1,2)        | APR-JUL         | 530               | 657             | 715                   | 94       | 773             | 900             | 765  |            |  |
|                               | APR-SEP         | 582               | 725             | 790                   | 94       | 855             | 998             | 845  |            |  |
| Pacific Ck At Moran           | APR-JUL         | 113               | 138             | 155                   | 95       | 172             | 197             | 164  |            |  |
|                               | APR-SEP         | 120               | 146             | 164                   | 95       | 182             | 210             | 173  |            |  |
| Buffalo Fork ab Lava nr Moran | APR-JUL         | 207               | 241             | 265                   | 95       | 289             | 323             | 280  |            |  |
|                               | APR-SEP         | 234               | 273             | 300                   | 94       | 327             | 366             | 320  |            |  |
| Snake R nr Alpine (1,2)       | APR-JUL         | 1403              | 1772            | 1940                  | 89       | 2108            | 2477            | 2170 |            |  |
|                               | APR-SEP         | 1610              | 2036            | 2230                  | 89       | 2424            | 2850            | 2500 |            |  |
| Greys R Nr Alpine             | APR-JUL         | 182               | 234             | 270                   | 89       | 306             | 358             | 305  |            |  |
|                               | APR-SEP         | 212               | 274             | 315                   | 88       | 356             | 418             | 360  |            |  |
| Salt R Nr Etna                | APR-JUL         | 109               | 193             | 250                   | 83       | 307             | 391             | 300  |            |  |
|                               | APR-SEP         | 149               | 248             | 315                   | 85       | 382             | 481             | 370  |            |  |
| Snake R nr Irwin (1,2)        | APR-JUL         | 1866              | 2398            | 2640                  | 88       | 2882            | 3414            | 3010 |            |  |
|                               | APR-SEP         | 2199              | 2798            | 3070                  | 88       | 3342            | 3941            | 3500 |            |  |
| Snake R nr Heise (2)          | APR-JUL         | 2161              | 2553            | 2820                  | 87       | 3087            | 3479            | 3240 |            |  |
|                               | APR-SEP         | 2549              | 2996            | 3300                  | 87       | 3604            | 4051            | 3780 |            |  |
| Willow Ck nr Ririe            | MAR-JUL         | 4.0               | 31              | 50                    | 75       | 69              | 96              | 67   |            |  |
| Blackfoot R ab Res nr Henry   | APR-JUN         | 17.9              | 32              | 44                    | 73       | 58              | 82              | 60   |            |  |
| Snake R nr Blackfoot (1,2)    | APR-JUL         | 2550              | 3245            | 3560                  | 84       | 3875            | 4570            | 4260 |            |  |
|                               | APR-SEP         | 3106              | 3955            | 4340                  | 83       | 4725            | 5574            | 5220 |            |  |
| Portneuf R at Topaz           | MAR-JUL         | 38                | 49              | 57                    | 75       | 66              | 80              | 76   |            |  |
|                               | MAR-SEP         | 47                | 60              | 70                    | 75       | 80              | 97              | 93   |            |  |
| Snake R at Neeley (1,2)       | APR-JUL         | 908               | 1865            | 2300                  | 87       | 2735            | 3692            | 2650 |            |  |
|                               | APR-SEP         | 813               | 1849            | 2320                  | 83       | 2791            | 3827            | 2810 |            |  |

UPPER SNAKE RIVER BASIN  
Reservoir Storage (1000 AF) - End of January

UPPER SNAKE RIVER BASIN  
Watershed Snowpack Analysis - February 1, 2013

| Reservoir      | Usable Capacity | *** Usable Storage *** |           |        | Watershed                  | Number of Data Sites | This Year as % of |         |
|----------------|-----------------|------------------------|-----------|--------|----------------------------|----------------------|-------------------|---------|
|                |                 | This Year              | Last Year | Avg    |                            |                      | Last Yr           | Average |
| Henry's Lake   | 90.4            | 90.8                   | 87.2      | 80.1   | Henry's Fork-Falls River   | 7                    | 107               | 101     |
| Island Park    | 135.2           | 100.8                  | 109.2     | 100.0  | Teton River                | 4                    | 75                | 79      |
| Grassy Lake    | 15.2            | 12.7                   | 12.1      | 11.9   | Henry's Fork above Rexburg | 11                   | 96                | 94      |
| Jackson Lake   | 847.0           | 618.2                  | 638.8     | 431.2  | Snake above Jackson Lake   | 9                    | 87                | 97      |
| Palisades      | 1400.0          | 559.4                  | 1236.5    | 911.2  | Pacific Creek              | 3                    | 78                | 103     |
| Ririe          | 80.5            | 46.4                   | 44.2      | 38.7   | Gros Ventre River          | 4                    | 99                | 93      |
| Blackfoot      | 348.7           | 222.9                  | 283.3     | 176.3  | Hoback River               | 5                    | 88                | 91      |
| American Falls | 1672.6          | 1104.7                 | 1162.7    | 1116.0 | Greys River                | 4                    | 93                | 93      |
|                |                 |                        |           |        | Salt River                 | 5                    | 99                | 95      |
|                |                 |                        |           |        | Snake above Palisades      | 28                   | 90                | 94      |
|                |                 |                        |           |        | Willow Creek               | 2                    | 72                | 71      |
|                |                 |                        |           |        | Blackfoot River            | 3                    | 85                | 85      |
|                |                 |                        |           |        | Portneuf River             | 6                    | 71                | 61      |
|                |                 |                        |           |        | Snake abv American Falls   | 40                   | 90                | 92      |

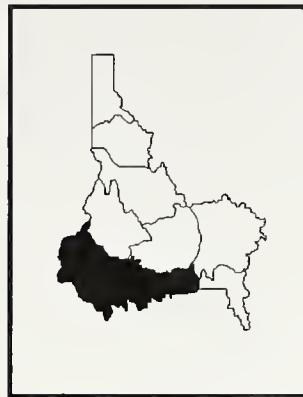
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

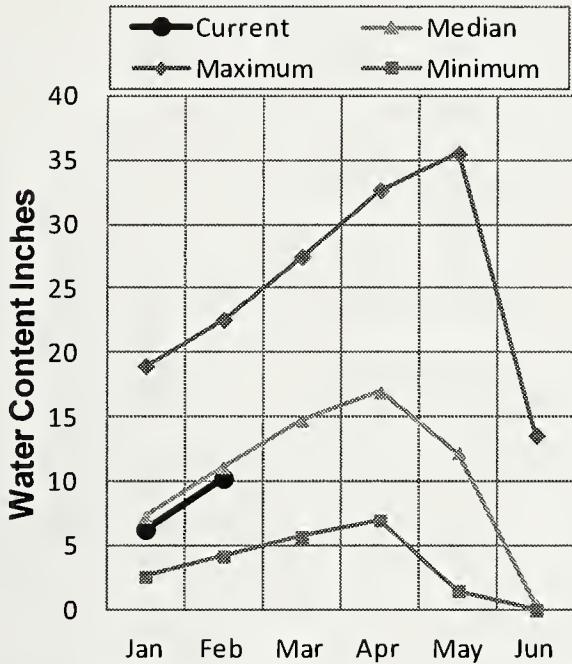
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

# SOUTHSIDE SNAKE RIVER BASINS

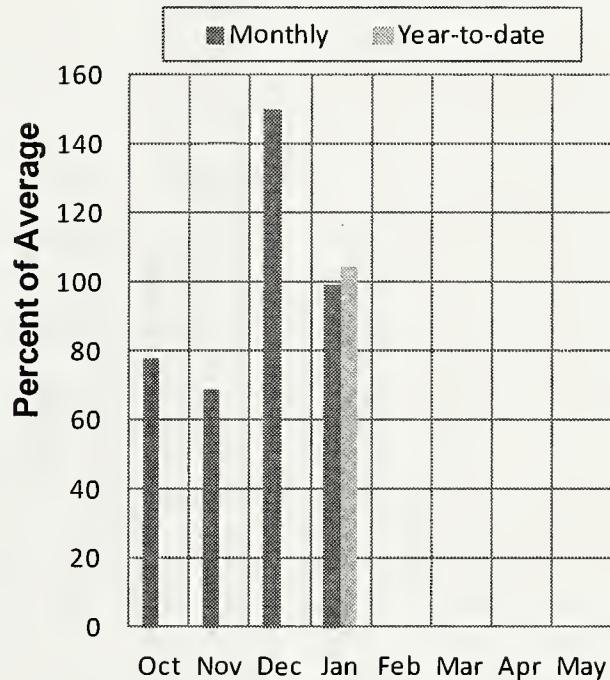
FEBRUARY 1, 2013



## Mountain Snowpack (inches) SOUTHSIDE SNAKE RIVER BASINS



## Mountain Precipitation SOUTHSIDE SNAKE RIVER BASINS



## WATER SUPPLY OUTLOOK

Unlike the rest of Idaho, which was dry in January, the basins south of the Snake River saw average or better precipitation for the month. The best monthly precipitation occurred in the Bruneau and Salmon Falls basins which each received about 115% of their normal monthly amount. Water year to date precipitation across these basins remains slightly better than average. Snowpack percentages edged a couple points closer to normal in the Goose Creek and Owyhee basins, and are now about 90% of normal. Snow in the Bruneau and Salmon Falls basins jumped about 12 percentage points from last month; both are near 95% of the normal for February 1. Reservoirs in this region are storing less than average amounts, the only exception is Brownlee which is near average. Oakley Reservoir is 27% of capacity, 89% of average. Salmon Falls Reservoir is 16% of capacity, 69% of average. Owyhee Reservoir is 39% of capacity, 64% of average and with a near average streamflow forecast, should have an adequate irrigation supply. But keep in mind, the Owyhee basin often needs a rain event to produce runoff. Streamflow forecasts for Oakley Reservoir inflow are for only 75% of average and shortages are likely based the Surface Water Supply Index. Salmon Falls Creek is forecast at 82% of average and when combined with reservoir storage shows that irrigation supplies may be marginally adequate. The Bruneau River is forecast at 87% of average which is nearly twice the volumes from last year which was 39% of average, 92,000 acre-feet.

**SOUTHSIDE SNAKE RIVER BASINS**  
Streamflow Forecasts - February 1, 2013

| Forecast Point                     | Forecast Period | Future Conditions |                 |                       |          | Wetter >> |          |          | 30-Yr Avg. |
|------------------------------------|-----------------|-------------------|-----------------|-----------------------|----------|-----------|----------|----------|------------|
|                                    |                 | << Drier          |                 | Chance Of Exceeding * |          | 30%       |          | 10%      |            |
|                                    |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 50%<br>(1000AF)       | (% AVG.) | (1000AF)  | (1000AF) | (1000AF) |            |
| Goose Ck ab Trapper Ck nr Oakley   | MAR-JUL         | 4.7               | 11.4            | 15.9                  | 72       | 20        | 27       | 22       |            |
|                                    | MAR-SEP         | 4.7               | 11.8            | 16.7                  | 70       | 22        | 29       | 24       |            |
| Trapper Ck nr Oakley               | MAR-JUL         | 3.4               | 4.4             | 5.0                   | 85       | 5.6       | 6.6      | 5.9      |            |
|                                    | MAR-SEP         | 4.4               | 5.4             | 6.1                   | 86       | 6.8       | 7.8      | 7.1      |            |
| Oakley Res Inflow (2)              | MAR-JUL         | 6.3               | 15.0            | 21                    | 75       | 27        | 36       | 28       |            |
|                                    | MAR-SEP         | 7.2               | 16.6            | 23                    | 74       | 29        | 39       | 31       |            |
| Salmon Falls Ck nr San Jacinto     | MAR-JUN         | 33                | 50              | 63                    | 82       | 78        | 102      | 77       |            |
|                                    | MAR-JUL         | 34                | 52              | 66                    | 82       | 82        | 108      | 81       |            |
|                                    | MAR-SEP         | 36                | 54              | 69                    | 81       | 85        | 112      | 85       |            |
| Bruneau R nr Hot Springs           | MAR-JUL         | 95                | 141             | 178                   | 87       | 220       | 285      | 205      |            |
|                                    | MAR-SEP         | 99                | 148             | 186                   | 87       | 230       | 300      | 215      |            |
| Reynolds Ck at Tollgate            | MAR-JUL         | 1.3               | 4.0             | 5.8                   | 66       | 7.6       | 10.3     | 8.8      |            |
| Owyhee R nr Gold Ck (2)            | MAR-JUL         | 9.9               | 15.8            | 21                    | 75       | 27        | 38       | 28       |            |
|                                    | MAR-SEP         | 8.7               | 14.1            | 18.8                  | 70       | 24        | 35       | 27       |            |
| Owyhee R nr Rome                   | FEB-JUL         | 275               | 470             | 600                   | 103      | 730       | 925      | 580      |            |
|                                    | FEB-SEP         | 280               | 475             | 610                   | 103      | 745       | 940      | 595      |            |
| Owyhee R bl Owyhee Dam (2)         | FEB-JUL         | 350               | 515             | 645                   | 102      | 790       | 1030     | 635      |            |
|                                    | FEB-SEP         | 370               | 535             | 665                   | 100      | 810       | 1050     | 665      |            |
|                                    | APR-SEP         | 200               | 310             | 400                   | 99       | 500       | 670      | 405      |            |
| Snake R at King Hill (1,2)         | APR-JUL         | 455               | 1270            | 1640                  | 63       | 2010      | 2820     | 2620     |            |
| Snake R nr Murphy (1,2)            | APR-JUL         | 575               | 1430            | 1820                  | 70       | 2210      | 3060     | 2610     |            |
| Snake R at Weiser (1,2)            | APR-JUL         | 865               | 2820            | 3710                  | 74       | 4600      | 6560     | 5010     |            |
| Snake R at Hells Canyon Dam (1,2)  | APR-JUL         | 710               | 2810            | 3760                  | 65       | 4710      | 6810     | 5760     |            |
| Snake R bl Lower Granite Dam (1,2) | APR-JUL         | 8790              | 15200           | 18100                 | 91       | 21000     | 27400    | 19850    |            |

**SOUTHSIDE SNAKE RIVER BASINS**  
Reservoir Storage (1000 AF) - End of January

**SOUTHSIDE SNAKE RIVER BASINS**  
Watershed Snowpack Analysis - February 1, 2013

| Reservoir           | Usable Capacity | *** Usable Storage *** |           |        | Watershed            | Number of Data Sites | This Year as % of |         |
|---------------------|-----------------|------------------------|-----------|--------|----------------------|----------------------|-------------------|---------|
|                     |                 | This Year              | Last Year | Avg    |                      |                      | Last Yr           | Average |
| Oakley              | 75.6            | 20.1                   | 34.2      | 22.5   | Raft River           | 2                    | 92                | 97      |
| Salmon Falls        | 182.6           | 29.9                   | 85.7      | 43.3   | Goose-Trapper Creeks | 2                    | 78                | 90      |
| WILDHORSE RESERVOIR | 71.5            | 25.5                   | 49.2      | 33.2   | Salmon Falls Creek   | 7                    | 119               | 99      |
| OWYHEE              | 715.0           | 280.7                  | 516.6     | 438.3  | Bruneau River        | 8                    | 137               | 92      |
| Brownlee            | 1420.0          | 1226.1                 | 1320.1    | 1189.0 | Reynolds Creek       | 6                    | 88                | 75      |
|                     |                 |                        |           |        | Owyhee Basin Total   | 16                   | 153               | 93      |
|                     |                 |                        |           |        | Owyhee Basin SNOTEL  | 8                    | 117               | 86      |

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

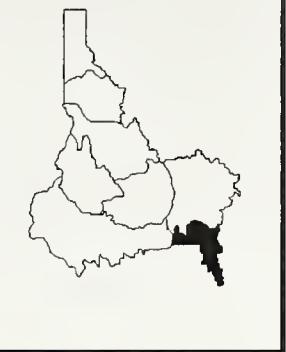
The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

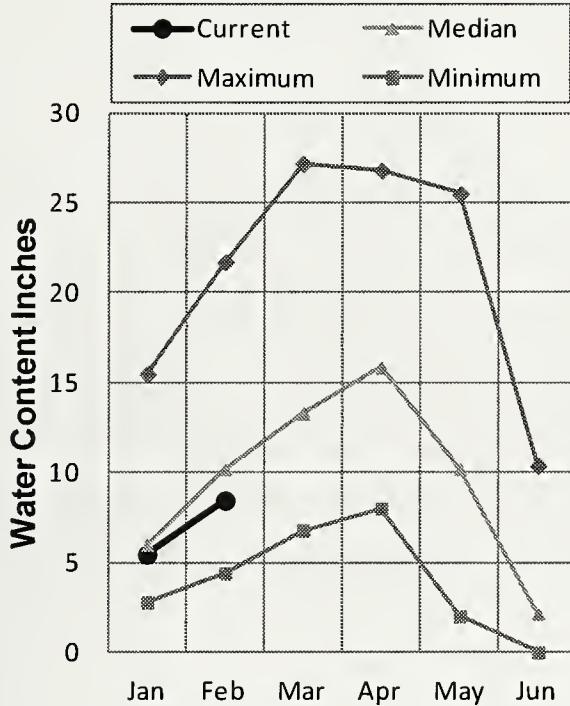
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# BEAR RIVER BASIN

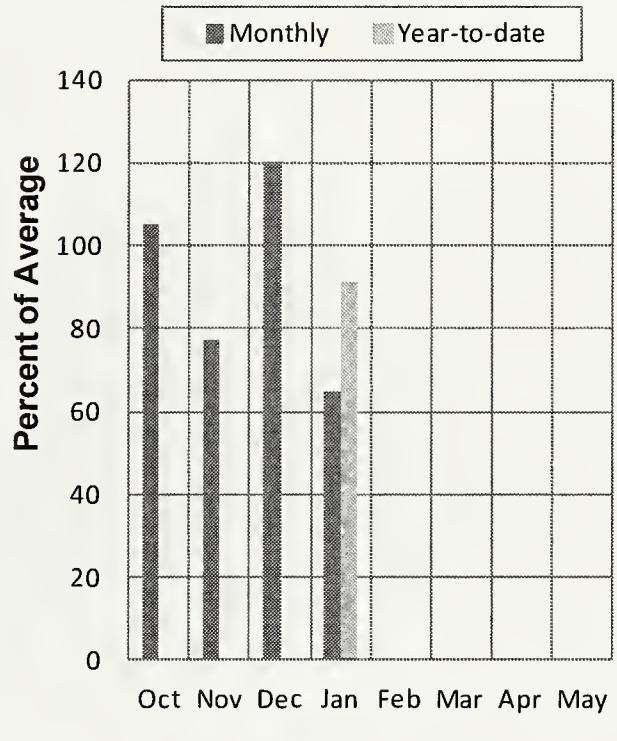
FEBRUARY 1, 2013



## Mountain Snowpack (inches) BEAR RIVER BASIN



## Mountain Precipitation BEAR RIVER BASIN



## WATER SUPPLY OUTLOOK

The Bear River missed precipitation that fell on other parts of southern Idaho last month. While most of southern Idaho had normal precipitation in January, the Bear River only saw 65% of average. Water year to date precipitation is 91% of average since October 1. The Bear River February 1 snowpack is 88% of the 1981-2010 median. Current snow water amounts are very similar to last year at this time. Bear Lake is storing 880,500 acre-feet which is 62% of capacity and 125% of the 1981-2010 average. Due to very low lake levels in the mid-2000s, the new averages for Bear Lake have shifted significantly downward. Take the January 31 average storage amounts for example, the 1971-2000 average was 906,100 acre-feet, while the new 1981-2010 average is 698,900 acre-feet. The new, lower average boosts this month's percent above average. If the older 1971-2000 average was still used, storage would be considered below average. This is a good example of how water users must recalibrate their thinking to the new averages. The Bear River below Stewart Dam is forecast for just 35% of average flow for the April-July period. Forecasts further upstream for the Bear River are about 75% of average for points near Woodruff and the Utah-Wyoming state line. Water users that rely on natural flow in the tributaries will see below normal runoff while the Bear Lake water users will have an adequate supply because of the good storage levels.

**BEAR RIVER BASIN**  
Streamflow Forecasts - February 1, 2013

| Forecast Point             | Forecast Period | Future Conditions     |              |              |          |              |              | 30-Yr Avg. (1000AF) |  |
|----------------------------|-----------------|-----------------------|--------------|--------------|----------|--------------|--------------|---------------------|--|
|                            |                 | Chance Of Exceeding * |              |              |          |              |              |                     |  |
|                            |                 | 90% (1000AF)          | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) |                     |  |
| Bear R nr UT-WY State Line | APR-JUL         | 42                    | 66           | 82           | 73       | 99           | 123          | 112                 |  |
|                            | APR-SEP         | 45                    | 72           | 90           | 73       | 108          | 135          | 123                 |  |
| Bear R ab Res nr Woodruff  | APR-JUL         | 5.0                   | 53           | 91           | 75       | 129          | 185          | 121                 |  |
|                            | APR-SEP         | 4.0                   | 48           | 96           | 75       | 144          | 216          | 128                 |  |
| Big Ck nr Randolph         | APR-JUL         | 0.4                   | 1.7          | 2.6          | 68       | 3.4          | 4.7          | 3.8                 |  |
| Smiths Fk nr Border        | APR-JUL         | 33                    | 54           | 68           | 76       | 83           | 104          | 89                  |  |
|                            | APR-SEP         | 41                    | 65           | 81           | 78       | 97           | 121          | 104                 |  |
| Bear R bl Stewart Dam      | APR-JUL         | 2.0                   | 20           | 64           | 35       | 119          | 201          | 183                 |  |
|                            | APR-SEP         | 4.0                   | 25           | 66           | 32       | 129          | 221          | 205                 |  |
| Little Bear R at Paradise  | APR-JUL         | 1.2                   | 11.8         | 22           | 54       | 32           | 47           | 41                  |  |
| Logan R nr Logan           | APR-JUL         | 19.0                  | 49           | 69           | 62       | 89           | 119          | 111                 |  |
| Blacksmith Fork nr Hyrum   | APR-JUL         | 12.7                  | 27           | 37           | 86       | 47           | 61           | 43                  |  |

**BEAR RIVER BASIN**  
Reservoir Storage (1000 AF) - End of January | **BEAR RIVER BASIN**  
Watershed Snowpack Analysis - February 1, 2013

| Reservoir        | Usable Capacity | *** Usable Storage *** |           |       | Watershed                | Number of Data Sites | This Year as % of |         |
|------------------|-----------------|------------------------|-----------|-------|--------------------------|----------------------|-------------------|---------|
|                  |                 | This Year              | Last Year | Avg   |                          |                      | Last Yr           | Average |
| Bear Lake        | 1421.0          | 880.5                  | 1091.1    | 703.8 | Smiths & Thomas Forks    | 4                    | 94                | 95      |
| Montpelier Creek | 4.0             | 1.4                    | 3.3       | 1.7   | Bear River ab WY-ID line | 4                    | 94                | 95      |
|                  |                 |                        |           |       | Montpelier Creek         | 2                    | 114               | 89      |
|                  |                 |                        |           |       | Mink Creek               | 1                    | 97                | 73      |
|                  |                 |                        |           |       | Cub River                | 1                    | 95                | 79      |
|                  |                 |                        |           |       | Bear River ab ID-UT line | 12                   | 100               | 89      |
|                  |                 |                        |           |       | Malad River              | 1                    | 84                | 80      |

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

**Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report:** Streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. (Revised Dec 2011).

### **Panhandle River Basins**

Kootenai R at Leonia, MT  
+ Lake Koocanusa storage change  
Moyie R at Eastport – no corrections  
Smith Creek nr Porthill – no corrections  
Boundary Ck nr Porthill – no corrections  
Clark Fork R at Whitehorse Rapids  
+ Hungry Horse storage change  
+ Flathead Lake storage change  
+ Noxon Rapids Res storage change  
Pend Oreille Lake Inflow  
+ Pend Oreille R at Newport, WA  
+ Hungry Horse storage change  
+ Flathead Lake storage change  
+ Noxon Rapids storage change  
+ Pend Oreille Lake storage change  
+ Priest Lake storage change  
Priest R nr Priest R  
+ Priest Lake storage change  
NF Coeur d'Alene R at Enaville - no corrections  
St. Joe R at Calder- no corrections  
Spokane R nr Post Falls  
+ Coeur d'Alene Lake storage change  
Spokane R at Long Lake, WA  
+ Coeur d'Alene Lake storage change  
+ Long Lake, WA storage change

### **Clearwater River Basin**

Selway R nr Lowell - no corrections  
Lochsa R nr Lowell - no corrections  
Dworshak Res Inflow  
+ Clearwater R nr Peck  
- Clearwater R at Orofino  
+ Dworshak Res storage change  
Clearwater R at Orofino - no corrections  
Clearwater R at Spalding  
+ Dworshak Res storage change

### **Salmon River Basin**

Salmon R at Salmon - no corrections  
Lemhi R nr Lemhi – no corrections  
MF Salmon R at MF Lodge – no corrections  
SF Salmon R nr Krassel Ranger Station – no corrections  
Johnson Creek at Yellow pine – no corrections  
Salmon R at White Bird - no corrections

### **Weiser, Payette, Boise River Basins**

Weiser R nr Weiser - no corrections  
SF Payette R at Lowman - no corrections

### **Deadwood Res Inflow**

+ Deadwood R bl Deadwood Res nr Lowman  
+ Deadwood Res storage change

### **Lake Fork Payette R nr McCall – no corrections**

### **NF Payette R at Cascade**

+ Cascade Res storage change  
+ Payette Lake storage change

### **NF Payette R nr Banks**

+ Cascade Res storage change  
+ Payette Lake storage change

### **Payette R nr Horseshoe Bend**

+ Cascade Res storage change  
+ Deadwood Res storage change  
+ Payette Lake storage change

### **Boise R nr Twin Springs - no corrections**

### **SF Boise R at Anderson Ranch Dam**

+ Anderson Ranch Res storage change

### **Mores Ck nr Arrowrock Dam – no corrections**

### **Boise R nr Boise**

+ Anderson Ranch Res storage change  
+ Arrowrock Res storage change  
+ Lucky Peak Res storage change

### **Wood and Lost River Basins**

### **Big Wood R at Hailey - no corrections**

### **Big Wood R ab Magic Res**

+ Big Wood R at Stanton Crossing nr Bellevue  
+ Willow Ck

### **Camas Ck nr Blaine – no corrections**

### **Big Wood R bl Magic Dam nr Richfield**

+ Magic Res storage change

### **Little Wood R ab High Five Ck – no corrections**

### **Little Wood R nr Carey**

+ Little Wood Res storage change

### **Big Lost R at Howell Ranch - no corrections**

### **Big Lost R bl Mackay Res nr Mackay**

+ Mackay Res storage change

### **Little Lost R bl Wet Ck nr Howe - no corrections**

### **Upper Snake River Basin**

### **Henrys Fork nr Ashton**

+ Henrys Lake storage change  
+ Island Park Res storage change

### **Falls R nr Ashton**

+ Grassy Lake storage change  
+ Diversions from Falls R ab nr Ashton

### **Teton R nr Driggs - no corrections**

### **Teton R nr St. Anthony**

- Cross Cut Canal into Teton R  
+ Sum of Diversions for Teton R ab St. Anthony  
+ Teton Dam for water year 1976 only

## Henrys Fork nr Rexburg

- + Henrys Lake storage change
- + Island Park Res storage change
- + Grassy Lake storage change
- + 7 Diversions from Henrys Fk btw Ashton to St. Anthony
- + 21 Diversions from Henrys Fk btw St. Anthony to Rexburg
- + 3 Diversions from Falls R ab Ashton
- + 6 Diversions from Falls R nr Ashton to Chester

Snake R nr Flagg Ranch, WY – no corrections

Snake R nr Moran, WY

- + Jackson Lake storage change

Pacific Ck at Moran, WY - no corrections

Buffalo Fork ab Lava nr Moran, WY - no corrections

Gros Ventre R at Kelly, WY - no corrections

Snake R ab Res nr Alpine, WY

- + Jackson Lake storage change

Greys R nr Alpine, WY - no corrections

Salt R R nr Etna, WY - no corrections

Snake R nr Irwin

- + Jackson Lake storage change

- + Palisades Res storage change

Snake R nr Heise

- + Jackson Lake storage change

- + Palisades Res storage change

Willow Ck nr Ririe

- + Ririe Res storage change

*The forecasted natural volume for Willow Creek nr Ririe does not include an adjustment for Grays Lake water diverted from Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.*

Blackfoot R ab Res nr Henry

- + Blackfoot Res storage change

*The forecasted Blackfoot Reservoir Inflow includes Grays Lake water diverted from the Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.*

Portneuf R at Topaz - no corrections

Snake R at Neeley

- + Jackson Lake storage change

- + Palisades Res storage change

- + American Falls storage change

- + Teton Dam for water year 1976 only

## Southside Snake River Basins

Goose Ck nr Oakley - no adjustments

Trapper Ck nr Oakley - no adjustments

Oakley Res Inflow - *flow does not include Birch Creek*

- + Goose Ck

- + Trapper Ck

Salmon Falls Ck nr San Jacinto, NV - no corrections

Bruneau R nr Hot Springs - no corrections

Reynolds Ck at Tollgate - no corrections

Owyhee R nr Gold Ck, NV

- + Wildhorse Res storage change

Owyhee R nr Rome, OR – no Corrections

Owyhee R bl Owyhee Dam, OR

- + Owyhee Res storage change

- + Diversions to North and South Canals

## Bear River Basin

Bear R nr UT-WY Stateline, UT- no corrections

Bear R abv Res nr Woodruff, UT- no corrections

Big Ck nr Randolph, UT - no corrections

Smiths Fork nr Border, WY - no corrections

Bear R bl Stewart Dam nr Montpelier

- + Bear R bl Stewart Dam

- + Rainbow Inlet Canal

Little Bear R at Paradise, UT - no corrections

Logan R nr Logan, UT - no corrections

Blacksmith Fk nr Hyrum, UT - no corrections

## Reservoir Capacity Definitions (Units in 1,000 Acre-Feet, KAF)

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. (Revised Dec 2011)

| Basin/<br>Reservoir                | Dead<br>Storage | Inactive<br>Storage | Active<br>Storage | Surcharge<br>Storage | NRCS<br>Capacity | NRCS Capacity<br>Includes                            |
|------------------------------------|-----------------|---------------------|-------------------|----------------------|------------------|--|
| <b>Panhandle Region</b>            |                 |                     |                   |                      |                  |  |
| Hungry Horse                       | 39.73           | ---                 | 3451.00           | ---                  | 3451.0           | Active   |
| Flathead Lake                      | Unknown         | ---                 | 1791.00           | ---                  | 1791.0           | Active   |
| Noxon Rapids                       | Unknown         | ---                 | 335.00            | ---                  | 335.0            | Active   |
| Pend Oreille                       | 406.20          | 112.40              | 1042.70           | ---                  | 1561.3           | Dead + Inactive + Active                             |
| Coeur d'Alene                      | Unknown         | 13.50               | 225.00            | ---                  | 238.5            | Inactive + Active                                    |
| Priest Lake                        | 20.00           | 28.00               | 71.30             | ---                  | 119.3            | Dead + Inactive + Active                             |
| <b>Clearwater Basin</b>            |                 |                     |                   |                      |                  |  |
| Dworshak                           | Unknown         | 1452.00             | 2016.00           | ---                  | 3468.0           | Inactive + Active                                    |
| <b>Weiser/Boise/Payette Basins</b> |                 |                     |                   |                      |                  |  |
| Mann Creek                         | 1.61            | 0.24                | 11.10             | ---                  | 11.1             | Active   |
| Cascade                            | Unknown         | 46.70               | 646.50            | ---                  | 693.2            | Inactive + Active                                    |
| Deadwood                           | Unknown         | ---                 | 161.90            | ---                  | 161.9            | Active   |
| Anderson Ranch                     | 24.90           | 37.00               | 413.10            | ---                  | 450.1            | Inactive + Active                                    |
| Arrowrock                          | Unknown         | ---                 | 272.20            | ---                  | 272.2            | Active   |
| Lucky Peak                         | Unknown         | 28.80               | 264.40            | 13.80                | 293.2            | Inactive + Active                                    |
| Lake Lowell                        | 7.90            | 5.80                | 159.40            | ---                  | 165.2            | Inactive + Active                                    |
| <b>Wood/Lost Basins</b>            |                 |                     |                   |                      |                  |  |
| Magic                              | Unknown         | ---                 | 191.50            | ---                  | 191.5            | Active   |
| Little Wood                        | Unknown         | ---                 | 30.00             | ---                  | 30.0             | Active   |
| Mackay                             | 0.13            | ---                 | 44.37             | ---                  | 44.4             | Active   |
| <b>Upper Snake Basin</b>           |                 |                     |                   |                      |                  |  |
| Henrys Lake                        | Unknown         | ---                 | 90.40             | ---                  | 90.4             | Active   |
| Island Park                        | 0.40            | ---                 | 127.30            | 7.90                 | 135.2            | Active + Surcharge                                   |
| Grassy Lake                        | Unknown         | ---                 | 15.18             | ---                  | 15.2             | Active   |
| Jackson Lake                       | Unknown         | ---                 | 847.00            | ---                  | 847.0            | Active   |
| Palisades                          | 44.10           | 155.50              | 1200.00           | ---                  | 1400.0           | Dead + Inactive+Active                               |
| Ririe                              | 4.00            | 6.00                | 80.54             | 10.00                | 80.5             | Active   |
| Blackfoot                          | Unknown         | ---                 | 348.73            | ---                  | 348.7            | Active   |
| American Falls                     | Unknown         | ---                 | 1672.60           | ---                  | 1672.6           | Active   |
| <b>Southside Snake Basins</b>      |                 |                     |                   |                      |                  |  |
| Oakley                             | 0.00            | ---                 | 75.60             | ---                  | 75.6             | Active   |
| Salmon Falls                       | 48.00           | 5.00                | 182.65            | ---                  | 182.6            | Active + Inactive                                    |
| Wildhorse                          | Unknown         | ---                 | 71.50             | ---                  | 71.5             | Active   |
| Owyhee                             | 406.83          | ---                 | 715.00            | ---                  | 715.0            | Active   |
| Brownlee                           | 0.45            | 444.70              | 975.30            | ---                  | 1420.0           | Inactive + Active                                    |
| <b>Bear River Basin</b>            |                 |                     |                   |                      |                  |  |
| Bear Lake                          | 5000.00         | 119.00              | 1302.00           | ---                  | 1421.0           | Active + Inactive: includes 119 that can be released |
| Montpelier Creek                   | 0.21            | ---                 | 3.84              | ---                  | 4.0              | Dead + Active  |

# Interpreting Water Supply Forecasts

## Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

**90 Percent Chance of Exceedance Forecast.** There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

**70 Percent Chance of Exceedance Forecast.** There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

**50 Percent Chance of Exceedance Forecast.** There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

**30 Percent Chance of Exceedance Forecast.** There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

**10 Percent Chance of Exceedance Forecast.** There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

\*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

**30-Year Average.** The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

## To Decrease the Chance of Having Less Water than Planned for

A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

## To Decrease the Chance of Having More Water than Planned for

A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

## Using the forecasts - an Example

**Using the 50 Percent Exceedance Forecast.** Using the example forecasts shown below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 KAF.

**Using the 90 and 70 Percent Exceedance Forecasts.** If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving less than 610 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the 90 percent exceedance forecast). There is 10% chance of receiving less than 443 KAF.

**Using the 30 or 10 Percent Exceedance Forecasts.** If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving more than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

| Weiser, Payette, Boise River Basins<br>Streamflow Forecasts - January 2006 |                 |                       |                 |           |                 |                 |                 |                        |
|--|-----------------|-----------------------|-----------------|-----------|-----------------|-----------------|-----------------|------------------------|
| Forecast Point   | Forecast Period | Chance of Exceeding * |                 |           |                 |                 |                 |                        |
|  |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | (1000 AF) | 50%<br>(% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) | 30-Yr Avg.<br>(1000AF) |
| SF PAYETTE RIVER at Lowman (1)   | APR-JUL         | 329                   | 414             | 471       | 109             | 528             | 613             | 432                    |
|  | APR-SEP         | 369                   | 459             | 521       | 107             | 583             | 673             | 488                    |
| BOISE RIVER near Twin Springs (1)  | APR-JUL         | 443                   | 610             | 685       | 109             | 760             | 927             | 631                    |
|  | APR-SEP         | 495                   | 670             | 750       | 109             | 830             | 1005            | 690                    |

\*90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table

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